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Tetra Tech EM Inc.

200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

February 5, 2003

Ms. Verneta Simon
On-Scene Coordinator
Emergency Response Branch
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: **Letter Report on Emergency Response Activities**
Roberto Clemente High School Mercury Spill Site
Chicago, Cook County, Illinois
Technical Direction Document No. S05-0211-004
Tetra Tech Contract No. 68-W-00-129

Dear Ms. Simon:

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) is submitting the enclosed letter report for the Roberto Clemente High School Mercury Spill Site in Chicago, Cook County, Illinois.

If you have any questions or comments regarding the report or require additional copies, please contact me at (312) 946-6457 or Thomas Kouris at (312) 946-6431.

Sincerely,

for Lee Christenson
Tetra Tech START Project Manager

Enclosure

cc: Lorraine Kosik, U.S. EPA START Project Officer
Thomas Kouris, START Program Manager

LETTER REPORT
ROBERTO CLEMENTE HIGH SCHOOL MERCURY SPILL SITE
CHICAGO, COOK COUNTY, ILLINOIS

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5 Emergency Response Branch
77 West Jackson Boulevard
Chicago, IL 60604

TDD No.:	S05-0211-004
Date Prepared:	February 5, 2003
Contract No.:	68-W-00-129
Prepared by:	Tetra Tech EM Inc.
Tetra Tech START Project Manager:	Lee Christenson
Telephone No.:	(312) 946-6457
U.S. EPA On-Scene Coordinator:	Verneta Simon
Telephone No.:	(312) 886-3601

CONTENTS

FIGURES

1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) has prepared this letter report in accordance with Technical Direction Document (TDD) No. S05-0211-004, which the U.S. Environmental Protection Agency (U.S. EPA) assigned to START. The scope of this TDD was to perform emergency response activities at the Roberto Clemente High School Mercury Spill Site in Chicago, Cook County, Illinois. The response activities included air monitoring, documenting site cleanup activities, collecting site related-samples, and monitoring START costs.

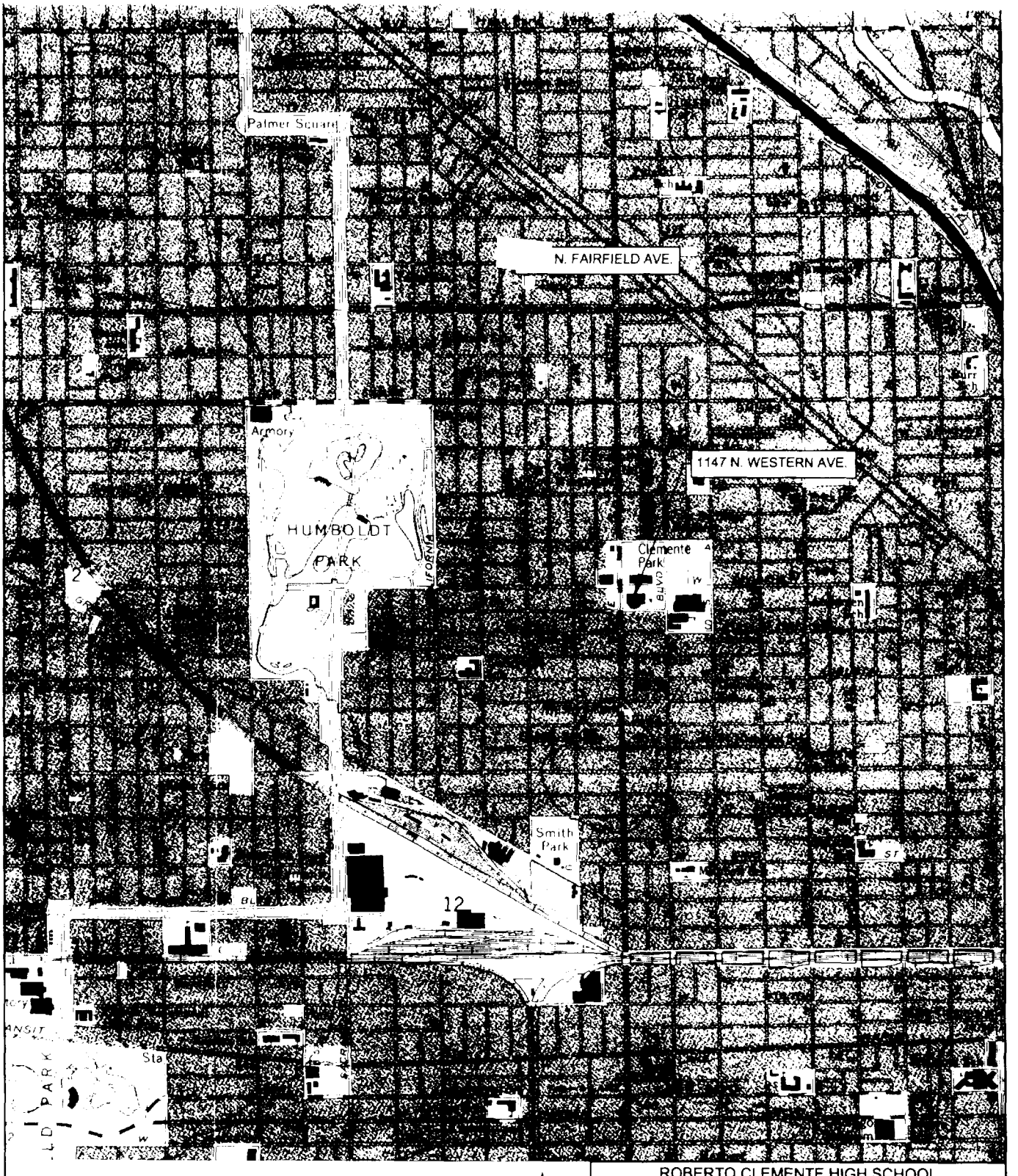
This report presents site background information, describes the response activities, and provides a summary of the response. Appendices A and B of this report respectively present a photographic log for the response activities and validated analytical results for the samples collected by START.

2.0 SITE BACKGROUND

The mercury spill site included Roberto Clemente High School at 1147 N. Western Avenue and the source of the mercury at a private residence at North Fairfield Avenue in Chicago, Cook County, Illinois (see Figure 1). Roberto Clemente High School is a 345,000-square-foot building with eight floors, 3 stairwells, and escalators. The mercury spill occurred in a classroom (room 717) on the 7th floor of the school. The school enrolls approximately 2,200 students and employs 152 faculty. The school is located on the southeast corner of the intersection of Division and Western Avenues. The residence that was the source of the mercury is an approximately 420-square-foot garden apartment consisting of two bedrooms, a kitchen, a bathroom, and a main room used as a third bedroom. Three individuals, a man and his two teenage children, inhabit the residence.

According to school officials and faculty, at 8:30 a.m. on November 15, 2002, a substitute teacher noticed approximately six students in room 717 of the school playing with what appeared to be mercury. After a permanent staff member was made aware of the situation, the students were sent to the school clinic, and the staff member attempted to clean up the mercury on her own. The school principal was informed of the situation by school staff at approximately 9:55 a.m. and immediately notified school system officials and emergency personnel. The students directly involved with the mercury spill were sent to rooms 305 and 307 of the school and isolated.

At approximately 10:45 a.m., Chicago Public School System (CPS) contractors and the Chicago Fire Department arrived at Roberto Clemente High School and began taking air monitoring readings on the 7th floor. Based on air monitoring results, it was recommended that students in the exposed area be isolated and that the other students remain in their respective classrooms. At approximately 12:00 noon, students from the 7th floor were moved to the auditorium on the 1st floor of the building. CPS contractors began screening students in room 305 for mercury with a VM 3000 air monitoring instrument. Students whose readings exceeded 0.5 microgram per cubic meter ($\mu g/m^3$) on their hands and shoes were decontaminated in the men's bathroom across the hall from room 305. After decontamination, the students were sent to room 301 to wait until CPS gave authorization for them to be released. A total of 32 students and one faculty member were taken to area hospitals for treatment. It was later determined that a student brought the mercury to the school in a 35mm film container and a lipstick container.



SOURCE: MODIFIED FROM USGS, CHICAGO LOOP, ILLINOIS, QUANDRANGLE, 1993

ROBERTO CLEMENTE HIGH SCHOOL
MERCURY SPILL SITE
CHICAGO, COOK COUNTY, ILLINOIS
TDD NO: S05-0211-004

FIGURE 1
SITE LOCATION MAP

Tetra Tech EM Inc.

At approximately 2:30 p.m., the Chicago Department of Environment (CDOE) requested assistance at the spill site from U.S. EPA. At approximately 3:30 p.m., U.S. EPA, the Agency for Toxic Substances and Disease Registry (ATSDR), and START arrived at the site.

3.0 RESPONSE ACTIVITIES

This section describes emergency response activities that took place at Roberto Clemente High School and at [redacted] North Fairfield Avenue from November 15 through December 6, 2002.

3.1 INITIAL RESPONSE ACTIVITIES

On November 15, 2002, CDOE requested U.S. EPA assistance in responding to the mercury spill at Roberto Clemente High School. U.S. EPA, ATSDR, and START arrived on site at approximately 3:30 p.m. and met with Terry Sheahan of CDOE and Dr. Joel McCullough of Chicago Department of Public Health (CDPH). Students and faculty began leaving the school at 4:40 p.m. Air monitoring for mercury vapors was conducted with a Lumex in the hallways and outside the room where the spill occurred. The monitoring demonstrated that three areas on the 7th floor had elevated levels of mercury: room 717, room 706, and the east end of the 7th floor hallway. The Lumex readings ranged from 0.5 to 4.0 $\mu g/m^3$. At 7:00 p.m., the two CPS contractors, Carnow, Conibear and Associates (CCA) and GSG Environmental Inc. (GSG), began characterizing every floor in the building. CCA used a Lumex on the 7th and 8th floors, and GSG used a Jerome Mercury Vapor Analyzer (Jerome), which can detect mercury vapors down to 3 $\mu g/m^3$, on the lower six floors. U.S. EPA and START checked the stairwells and escalators on every floor with a Lumex to confirm that the mercury was confined to the 7th floor and possibly the 4th floor. Because students who had been on the 7th floor were evacuated to the auditorium, the auditorium was screened for mercury vapors as a precaution. The highest mercury vapor readings recorded in the auditorium was 0.005 $\mu g/m^3$.

After the 7th floor was characterized for the presence of mercury vapors, RES Environmental Services (RES), the CPS cleanup subcontractor, decontaminated three areas: (1) room 717, where the spill occurred; (2) the hallway at the east end of the 7th floor, where mercury vapor levels as high as 2 $\mu g/m^3$ were detected; and (3) room 706, which the teacher who had attempted the spill cleanup had visited and where elevated levels of mercury vapor were detected.

The hallway cleanup was conducted by using Hg-X mercury vapor absorber to scrub the hallway floors. The two rooms were cleaned by scrubbing the furniture with Hg-X, removing the furniture from the

rooms, and then removing the carpeting in each room. The carpeting was sealed in plastic bags and placed in 55-gallon drums. After the carpeting was removed, the floor of each room was scrubbed with Hg-X, and the furniture was returned to the room. After decontamination of the rooms was complete, the rooms were ventilated using negative air pressure blowers to remove any residual airborne vapors.

On November 16, 2002, U.S. EPA, START, and RES used a Lumex to survey the 7th floor areas that RES had decontaminated. Readings were below the action level of 1.0 $\mu g/m^3$ as established by ATSDR.

Several book bags located in room 305 belonging to students directly involved with the mercury spill were surveyed with a Lumex. The readings for two of the book bags were 5.6 and 2.4 $\mu g/m^3$. These book bags were inventoried by CCA and placed in a 55-gallon drum by RES.

After consideration of the spill chronology on November 15, it was determined that the high school recreational building should be surveyed. This was a precautionary measure in case contamination had reached the recreational building, a two-story structure containing a gym and pool that was located across Division Street from the main school building. The recreational building is connected to the main building by an elevated walkway. The highest mercury vapor readings recorded in the recreational building was 0.045 $\mu g/m^3$ in the south stairwell.

3.2 RESPONSE ACTIVITIES AT [redacted] NORTH FAIRFIELD AVENUE

At approximately 10:00 a.m. on November 19, 2002, U.S. EPA, START, and CDOE visited [redacted] North Fairfield Avenue, the home of the student who reportedly had brought mercury to Roberto Clemente High School on November 15 (see Figure 1). The home is a two-bedroom garden apartment that is approximately 420 square feet in area. CDOE spoke to the students' father, who stated that the mercury came from a blood pressure gauge recovered from a warehouse that he and his son had cleaned out for work. The father then stated that his son had opened the gauge in the home and was not aware of whether any mercury had spilled in the home. CDOE requested that U.S. EPA and START be allowed to screen the home for mercury contamination, and the father agreed to the screening.

The temperature inside the apartment was approximately 85 °F. A small gas heater was being used in the main room located in the center of the apartment. START used a Lumex to screen the apartment for

mercury vapors. The Lumex immediately registered readings up to 44 $\mu g/m^3$. The readings taken throughout the home were greater than 44 $\mu g/m^3$; the highest reading, 49 $\mu g/m^3$, was taken in the son's bedroom. ASTDR's action level for mercury cleanup in residential buildings is 1.0 $\mu g/m^3$. Upon closer inspection, START noticed beads of mercury throughout the entire home, with most being located in the son's bedroom. The blood pressure gauge that was the source of the mercury was located on a chair in the son's bedroom. U.S. EPA notified the father that the apartment would need to be cleaned and suggested that the family stay somewhere else during the cleanup. The father agreed, and the family was temporarily relocated to a hotel with the assistance of U.S. EPA. The heater in the apartment was turned off, and the windows were opened in order to ventilate the rooms. U.S. EPA then mobilized the Emergency and Rapid Response Services (ERRS) contractor.

At 1:50 p.m., the ERRS remedial manager (RM) arrived on site. After touring the apartment, the RM mobilized the crew and equipment needed to clean the apartment. At 3:45 p.m., the ERRS crew arrived on site. The ERRS RM mobilized a moving truck to provide temporary storage for all the personal belongings in the home. The ERRS crew then began wrapping all large furniture in plastic sheeting and placing the furniture in the moving truck. After all large items were removed, the ERRS crew used a high effeciency particulate air (HEPA)-filter vacuum to pick up all loose mercury on the floor of the home. Once the apartment was thoroughly vacuumed, any remaining items in the apartment were double-bagged and placed in the moving truck or staged in the back yard. After all items in the house were removed, ERRS scrubbed the floors in the home with Hg-X. All items were heated for approximately 20 minutes using a turbo heater and screened by START using the Lumex. Items with a reading of over 10 $\mu g/m^3$ were set aside for disposal; all other items were kept.

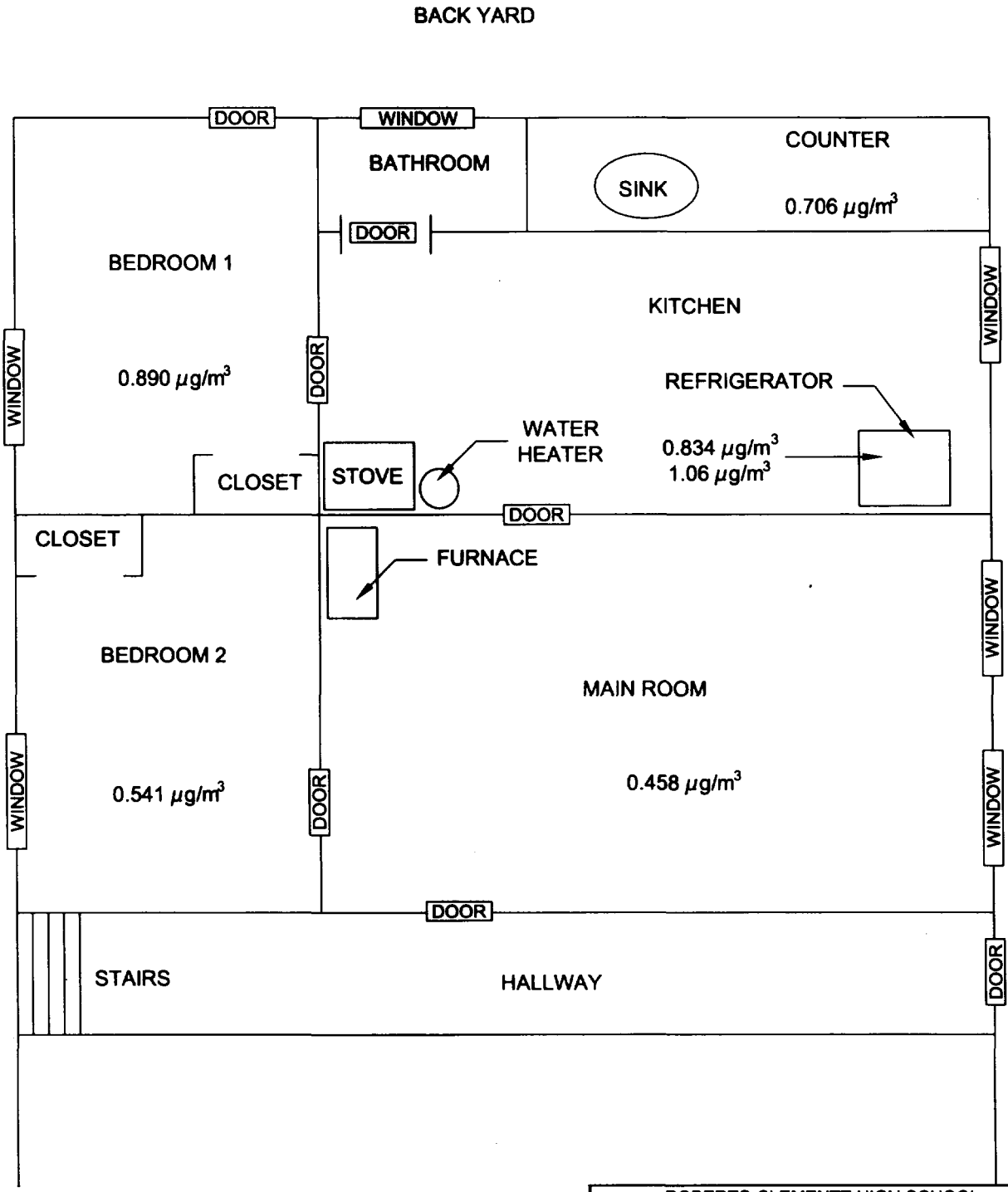
On November 20, 2002, the ERRS RM mobilized a roll off box to North Fairfield Avenue for disposal of all the contaminated items. All these items were placed in the roll-off box and were hauled off site by SET Environmental. Once all the contaminated items were removed, an attempt was made to heat and vent the apartment in order to bring the levels of mercury vapor down. After several heating and venting attempts, Lumex readings were still over 4 $\mu g/m^3$ in the son's bedroom and between 1 and 3 $\mu g/m^3$ in the rest of the home. Lumex readings of 2.69 $\mu g/m^3$ were also recorded in the bathroom sink drain. After discussing the problem, U.S. EPA, START, and the ERRS RM decided that an attempt would be made to seal the floor, install linoleum over the existing tile, and caulk around the baseboards of the walls.

On November 21, 2002, the ERRS RM mobilized a plumber to install a new drain trap in the bathroom sink. The ERRS crew used a sealant in an attempt to seal any possible mercury vapor source. Two layers of sealant were spread throughout the home and left to dry overnight. The ERRS RM purchased the materials to install a new linoleum floor in the home.

On November 22, 2002, the ERRS crew installed a linoleum floor in the residence over the two coats of sealant, which had dried overnight. After the linoleum was installed, caulk was used to create a seal around the floorboards of the residence. After installation of the floor, an attempt was made to heat the apartment so that air samples could be collected; however, the furnace would not light.

On November 23, 2002, U.S. EPA, the ERRS crew, and START and returned to the home. The ERRS crew used a kerosene heater to heat the apartment for collection of confirmation air samples and called a repair company to fix the furnace for long-term use. The repair company stated that the furnace could not be repaired because of its age and that the cheapest solution was furnace replacement. START began collecting confirmation air samples once the home was heated; the average temperature during sample collection was about 80 °F. Six samples were collected, including a duplicate sample at one location. One sample each was collected in the daughter's bedroom, the son's bedroom, and the main room. Three samples were collected in the kitchen using two sample pumps; the duplicate sample was collected from one of the pumps using a splitter. After allowing the sample pumps to run for at least 4 hours, START collected the samples and placed them in a cooler. The samples were shipped via FedEx same-day service to Analytical Environmental Sciences, Inc., in Atlanta, Georgia. The samples were analyzed for mercury using National Institute for Occupational Safety and Health Method 6009.

On November 24, 2002, analytical results for the confirmation samples collected on November 23 were received. All the samples except the duplicate sample had mercury results below the action level of 1.0 $\mu g/m^3$. The duplicate sample collected in the kitchen had a result of 1.06 $\mu g/m^3$, but the two other samples collected in the kitchen had results of 0.706 and 0.834 $\mu g/m^3$. Figure 2 identifies the sampling locations and analytical results.



NOTE: $\mu g/m^3$ = Microgram per cubic meter

NOT TO SCALE

ROBERTO CLEMENTE HIGH SCHOOL
MERCURY SPILL SITE
CHICAGO, COOK COUNTY, ILLINOIS
TDD NO: S05-0211-004

FIGURE 2
NORTH FAIRFIELD AVENUE LAYOUT MAP

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On November 25, 2002, a new furnace was installed in the apartment. ATSDR gave its approval for the family to return to the home and for its items to be returned to the home. On the evening of November 25 the family returned home.

On December 6, 2002, U.S. EPA and START mobilized to 410 Bryar Place, the residence of a teacher at Roberto Clemente High School. The teacher gave U.S. EPA and START access to a pair of shoes that were potentially contaminated as a result of the mercury spill at the high school. The shoes were heated using a space heater for 20 minutes and were surveyed for mercury vapor using a Lumex. Maximum readings of 0.01 $\mu g/m^3$ were recorded, well below the action level for personal belongings of 10 $\mu g/m^3$.

4.0 SUMMARY

On November 15, 2002, CDOE requested U.S. EPA assistance in responding to a mercury spill at Roberto Clemente High School. According to school officials and faculty, a substitute teacher noticed approximately six students in room 717 of the school playing with what appeared to be mercury. A total of 32 students and one faculty member were taken to area hospitals for treatment. It was later determined that the mercury was brought to the school by a student in a 35mm film container and a lipstick container. U.S. EPA and START mobilized to Roberto Clemente High School to begin response activities, which included air monitoring, documenting site cleanup activities, collecting site-related samples, and monitoring START costs. Lumex readings indicated that two rooms on the 7th floor and the east end of the 7th floor hallway had elevated mercury readings.

Decontamination was conducted by removing furniture and carpeting from the rooms and scrubbing the furniture and the room and hallway floors with Hg-X mercury vapor absorber. After decontamination, the rooms were ventilated using negative air pressure blowers. On November 16, 2002, U.S. EPA, START, and RES used a Lumex to survey the 7th floor areas that RES had decontaminated. The Lumex readings were below the action level of 1.0 $\mu g/m^3$.

On November 19, 2002, U.S. EPA, START, and CDOE visited [redacted] North Fairfield Avenue, the home of the student who reportedly had brought mercury to Roberto Clemente High School on November 15. CDOE spoke to the students' father, who stated that the mercury came from a blood pressure gauge found while he and his son cleaned out a warehouse. Lumex readings taken in the home indicated mercury vapor levels between 44.0 and 49.0 $\mu g/m^3$. Beads of mercury were observed throughout the apartment. U.S. EPA turned off the heat in the home, opened the windows to ventilate the rooms, and then mobilized the ERRS contractor to the home.

The ERRS crew wrapped all the furniture and items in plastic and removed them from the house. A HEPA-filter vacuum was then used to pick up all loose mercury on the floor of the home and then the floors were scrubbed with Hg-X. All items were heated for 20 minutes, and START used the Lumex to screen the items. Items with a reading of over 10.0 $\mu g/m^3$ were set aside for disposal; all other items were kept.

After several unsuccessful attempts to bring mercury vapor levels down to acceptable levels by heating and venting the home, U.S. EPA, START, and the ERRS RM decided to seal the floor using a sealant and place a new linoleum floor over the existing tile. The ERRS RM mobilized a plumber to install a new drain trap in the bathroom sink, and the ERRS crew applied two layers of sealant throughout the home and installed a new linoleum floor.

The home's furnace failed, so a kerosene heater was used to heat the home for collection of confirmation samples. A total of six samples, including a duplicate sample, were collected from the two bedrooms, the main room, and the kitchen. All the samples except the duplicate sample had mercury results less than the action level of 1.0 $\mu g/m^3$. The duplicate sample, which was collected in the kitchen, had a mercury result of 1.06 $\mu g/m^3$, but the two other samples collected in the kitchen had results of 0.706 and 0.834 $\mu g/m^3$.

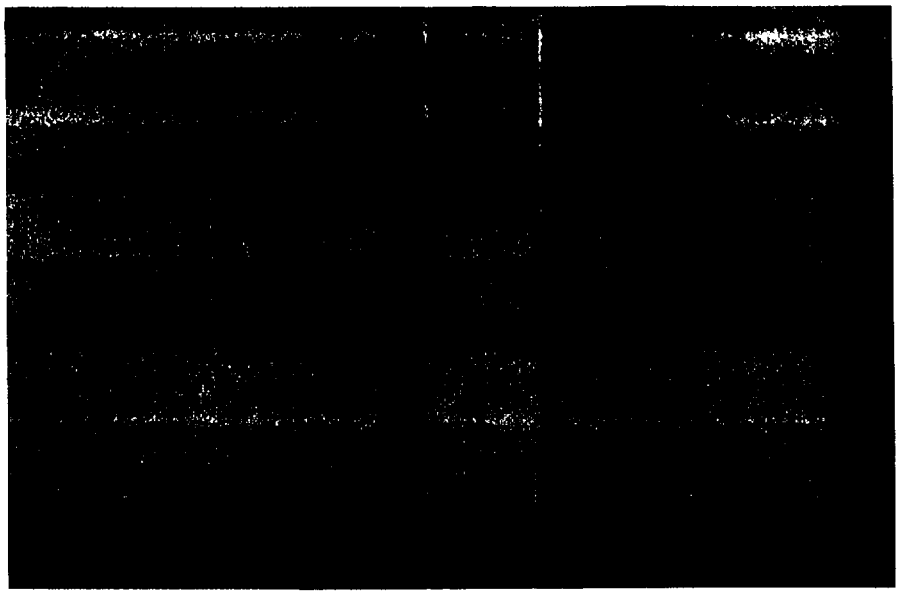
On November 25, 2002, a new furnace was installed in the home. ATSDR gave its approval for the family to return to the home and for its items to be returned to the home. On the evening of November 25, the family returned home. On December 6, 2002, U.S. EPA and START mobilized to 410 Bryar Place, the residence of a teacher at Roberto Clemente High School, in response to her concerns that the shoes she had worn to school on the day of the mercury spill were contaminated. START used a Lumex to screen her shoes. Maximum readings of 0.01 $\mu g/m^3$ were recorded, well below the action level for personal belongings. START does not anticipate any further activities at the site under this TDD.

APPENDIX A

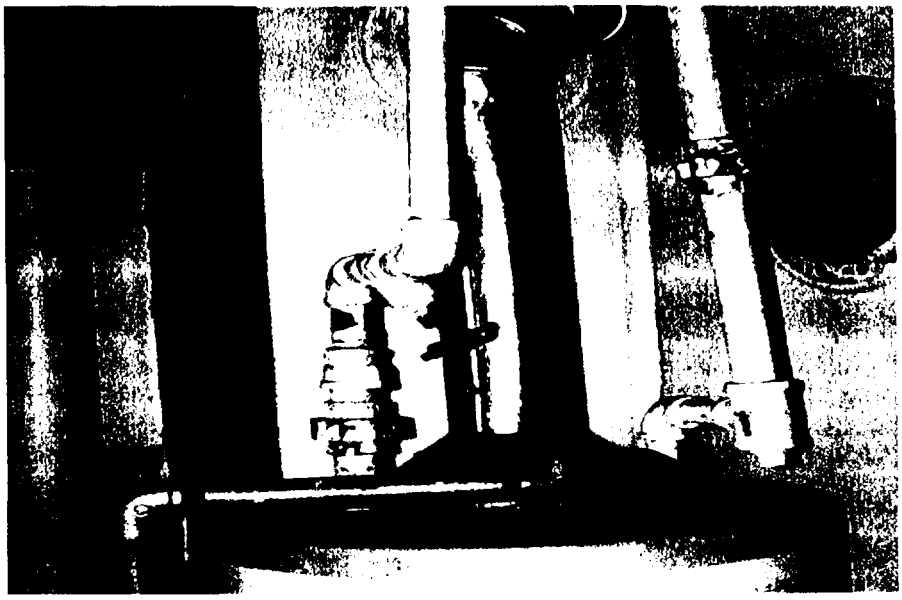
PHOTOGRAPHIC LOG

(Three Pages)

Photograph No.: 1 **Orientation:** Southwest
TDD No.: S05-0211-004 **Date:** November 25, 2002
Location: North Fairfield Avenue
Subject: Back door in girl's bedroom leading to back yard

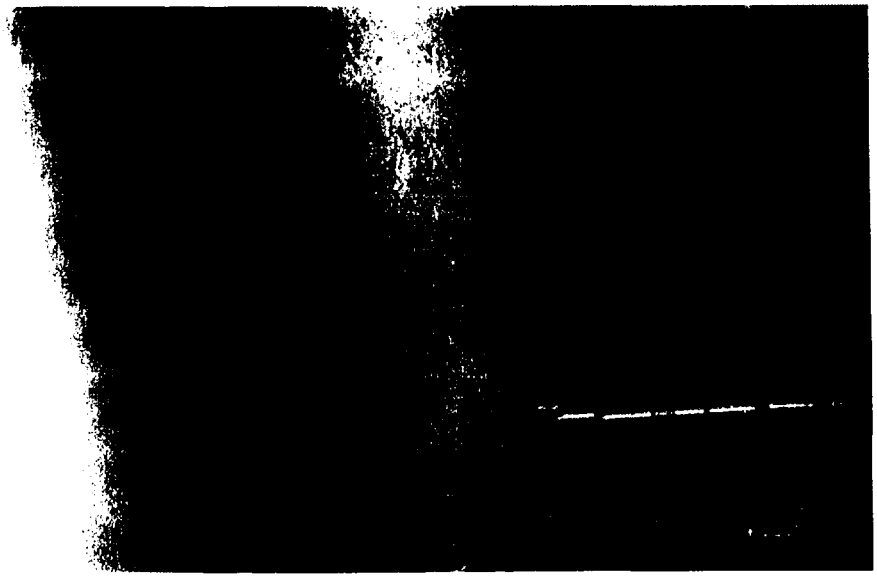


Photograph No.: 2 **Orientation:** Northwest
TDD No.: S05-0211-004 **Date:** November 25, 2002
Location: North Fairfield Avenue
Subject: New furnace in main room



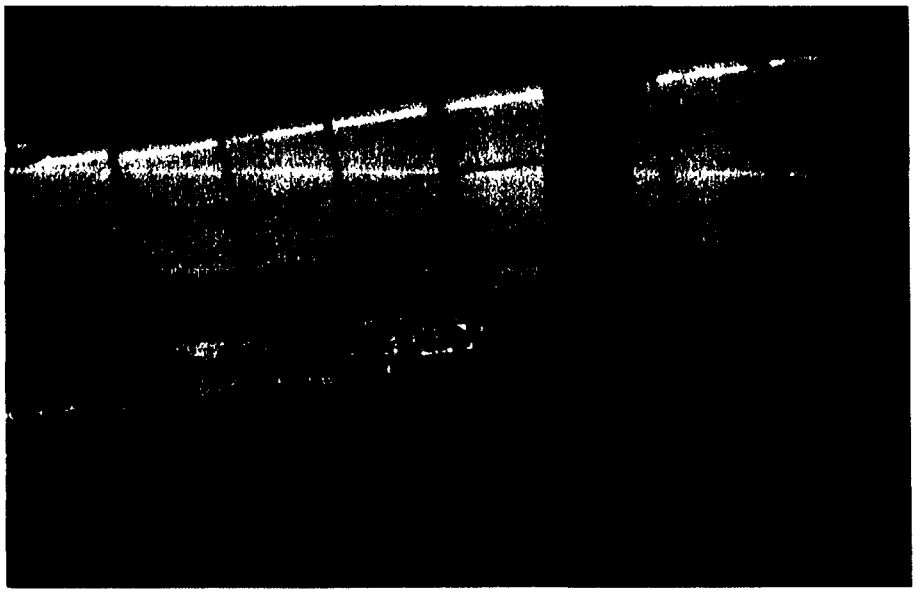
Photograph No.: 3
TDD No.: S05-0211-004
Location: North Fairfield Avenue
Subject: Water heater connections in kitchen

Orientation: Northeast
Date: November 25, 2002



Photograph No.: 4
TDD No.: S05-0211-004
Location: North Fairfield Avenue
Subject: Bathroom plumbing connections

Orientation: Northeast
Date: November 25, 2002



Photograph No.: 5
TDD No.: S05-0211-004
Location: North Fairfield Avenue
Subject: Bathroom plumbing connections

Orientation: Northeast
Date: November 25, 2002

APPENDIX B

VALIDATED ANALYTICAL RESULTS

(Four pages)

Tetra Tech EM Inc.
200 E. Randolph Drive, Suite 4700 ◆ Chicago, IL 60601 ◆ (312) 856-8700 ◆ FAX (312) 938-0118

MEMORANDUM

Date: January 22, 2003

To: Lee Christenson, Project Manager, Tetra Tech EM Inc. (Tetra Tech)
Superfund Technical Assessment and Response Team (START) for Region 5

From: Lisa Graczyk, Chemist, Tetra Tech START for Region 5

Subject: Data Validation for
Roberto Clemente High School
Chicago, Illinois
Analytical Technical Direction Document (TDD) No. S05-0211-006
Project TDD No. S05-0211-004

Laboratory: Analytical Environmental Sciences, Inc. (AES), Atlanta, Georgia
Work Order No. 0211666
Mercury Analysis of Six Solid Sorbent Tube Samples

1.0 INTRODUCTION

The Tetra Tech START for Region 5 validated mercury analytical data for six solid sorbent tube samples collected on November 23, 2002, during the Roberto Clemente High School emergency response in Chicago, Illinois. The samples were analyzed under the above-referenced work order by AES using National Institute for Occupational Safety and Health (NIOSH) Method 6009.

The data were validated in general accordance with the U.S. Environmental Protection Agency (U.S. EPA) "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (NFG) dated July 2002. Data validation consisted of a review of the following quality control (QC) parameters: holding times, initial and continuing calibrations, blank results, inductively coupled plasma (ICP) interference check sample results, laboratory control sample (LCS) results, duplicate sample results, matrix spike and matrix spike duplicate (MS/MSD) results, and sample result quantitation.

Section 2.0 discusses the results of the data validation, and Section 3.0 presents an overall assessment of

the data. The attachment contains AES's summary of the sample analytical results along with START's handwritten data qualifications where warranted.

2.0 DATA VALIDATION RESULTS

The results of START's data validation are summarized below in terms of the QC parameters reviewed. Because the NFG does not list QC requirements for mercury analysis of air samples, the QC parameters were compared to (1) QC limits specified in NIOSH Method 6009 or (2) QC limits specified in the NFG for mercury analysis of soil samples if applicable limits were not listed in NIOSH Method 6009. The data qualifier below was applied to the sample analytical results where warranted (see the attachment).

- J+ - The analyte was detected. The reported numerical value is considered estimated for QC reasons and may be biased high.

2.1 HOLDING TIMES

The samples were analyzed the day after their collection, which is within the QC limit of 30 days.

2.2 INITIAL AND CONTINUING CALIBRATIONS

The initial calibration met the QC limit of a correlation coefficient of 0.995 or greater. Both the initial calibration verification and the continuing calibration verification were within the QC limits of 80 to 120 percent recovery.

2.3 BLANK RESULTS

The initial and continuing calibration blanks contained minor concentrations of mercury that were at least 10 times below the quantitation limit. No qualifications are warranted for this minor irregularity.

START did not submit media blanks, field blanks, or trip blanks to AES with the samples. AES did analyze one media blank with the samples; however, the sorbent tube used for this blank was not from the same lot as the sorbent tubes used for sample collection. The result for AES's media blank was 0.031 microgram (µg) mercury, which is slightly above the laboratory's detection limit of 0.025 µg mercury. Because the media blank sorbent tube was not from the same lot as the sorbent tubes used for sample collection, all sample results are flagged "J+" as estimated, biased high. This issue is discussed further in Section 2.8.

2.4 ICP INTERFERENCE CHECK SAMPLE RESULTS

ICP interference check sample results do not apply to NIOSH Method 6009, which does not involve use of ICP instrumentation.

2.5 LCS RESULTS

An LCS and LCS duplicate (LCSD) were analyzed with the samples. The LCS and LCSD results were within the QC limits of 80 to 120 percent recovery and a relative percent difference of 20 percent.

2.6 DUPLICATE SAMPLE RESULTS

The results for the field duplicate sample were acceptable.

2.7 MS/MSD RESULTS

MS/MSD results do not apply to mercury analysis of air samples in sorbent tubes.

2.8 SAMPLE RESULT QUANTITATION

The sample quantitation for sample RC KFD-006 was checked and found to be done correctly except that no media blank correction was made because START did not supply a media blank sorbent tube from the same lot as the sample sorbent tubes submitted to AES. NIOSH Method 6009 requires that the media blank mercury result be subtracted from the sample results. All sample results are flagged "J+" as estimated, biased high, because of this irregularity. The mercury concentrations in the samples would likely have been reported at lower concentrations if a media blank correction had been performed.

3.0 OVERALL ASSESSMENT OF DATA

All the sample analytical data generated by AES are acceptable for use as qualified.

ATTACHMENT

AES SUMMARY OF SAMPLE ANALYTICAL RESULTS

(One Sheet)

Analytical Results
for

Tetra Tech EM, Inc.

WorkOrder: 0211666

Client Reference: Roberto Clemente Hg

Analyte	Concentration (ug)	Concentration (mg/m^3)	Concentration (ppm)	Limit of Detection (ug)	Qual	Test Method	Date Analyzed /Analyst
Client ID: RC BED1-001	**Lab ID:** 001A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 64.65	
Mercury	0.0350 J+	0.000541 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ
Client ID: RC BED2-002	**Lab ID:** 002A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 56.17	
Mercury	0.0500 J+	0.000890 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ
Client ID: RC Main-003	**Lab ID:** 003A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 113.5	
Mercury	0.0520 J+	0.000458 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ
Client ID: RC KC-004	**Lab ID:** 004A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 97.78	
Mercury	0.0690 J+	0.000706 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ
Client ID: RC KF-005	**Lab ID:** 005A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 51.58	
Mercury	0.0430 J+	0.000834 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ
Client ID: RC KFD-006	**Lab ID:** 006A	**Date Sampled:** 11/23/2002			**Matrix:** Solid sorbent tube	**Air Vol.(L):** 51.58	
Mercury	0.0545 J+	0.00106 J+	–	0.025		NIOSH 6009	11/24/2002 MCJ

(a) Analysis indicates possible breakthrough; back section result is greater than 30% of the front section result.

General Notes:
<: Less than the indicated limit of detection (LOD).
--: Information not available or not applicable.
Back sections were checked and showed no significant breakthrough.

L.H.
1-17-03